

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (previously presented): A speed change controller for a saddle-type vehicle, the controller comprising:

a detection mechanism configured to detect operation by a driver for speed change, and

a speed change mechanism that is configured to perform a speed change on the basis of a speed change operation detected by the detection mechanism, and

wherein the detection mechanism comprises an operation part including a moving part, which moves relative to the vehicle on the basis of manipulation by a foot, and

a detection unit that detects that the moving part moves at least a predetermined amount.

Claim 2 (previously presented): The speed change controller according to claim 1, wherein the operation part comprises the moving part, a shift pedal configured to be directly manipulated by a foot, and a link member that connects the pedal and the moving part.

Claim 3 (previously presented): The speed change controller according to claim 2, wherein one end of the link member is connectable to the moving part and attachable to an arm member provided on a shift shaft of the speed change mechanism.

Claim 4 (previously presented): The speed change controller according to claim 2, wherein the moving part comprises a lever member provided to be able to turn, and one end of the link member is connectable to the lever member and attachable to an arm member provided on a shift shaft of the speed change mechanism.

Claim 5 (original): The speed change controller according to claim 1, wherein the moving part is supported to be able to swing in two different vertical directions, and the detection unit detects a direction, in which the moving part swings, and discriminates between shift-up and shift-down by the direction.

Claim 6 (original): The speed change controller for saddle-ride type vehicles, according to claim 1, wherein the detection unit comprises a rotation sensor that detects that the moving part moves a predetermined angle about a predetermined rotating shaft.

Claim 7 (previously presented): The speed change controller for saddle-ride type vehicles, according to claim 1, wherein the detection unit comprises at least one sensor in two different respective directions, the sensors detecting that the moving part swings at least a predetermined amount in the two different directions from a predetermined reference position.

Claim 8 (previously presented): The speed change controller according to claim 1, wherein the detection mechanism comprises a base that supports at least the moving part and the detection unit, and the base is provided detachably on the vehicle.

Claim 9 (previously presented): The speed change controller according to claim 1, wherein the moving part is configured to be movable by manipulation by a foot in two different directions with a predetermined neutral position therebetween, and the operation part comprises a return mechanism that automatically returns the moving part, which moves in either of the directions by manipulation by a foot, to the neutral position.

Claim 10 (previously presented): The speed change controller according to claim 9, wherein the detection mechanism comprises a base that supports at least the moving part, the detection unit, and the return mechanism, and
the base is detachably coupled to the vehicle.

Claim 11 (previously presented): The speed change controller according to claim 1, wherein the moving part is configured to be movable by manipulation by a foot in two different directions with a predetermined neutral position therebetween, and
the operation part comprises a stopper that restricts a moving range of the moving part, which moves in either of the directions by manipulation by a foot.

Claim 12 (previously presented): 12. The speed change controller according to claim 11, wherein the detection mechanism comprises a base that supports at least the moving part, the detection unit, and the stopper, and
the base is provided detachably on the vehicle.

Claim 13 (previously presented): The speed change controller according to claim 1, wherein the detection mechanism comprises an operating force change mechanism that is configured to change the torque required for operative movement of the moving part, and
the operating force change mechanism is configured to changes torque required for movement of the moving part when or after the detection unit detects that the moving part moves at least a predetermined amount.

Claim 14 (previously presented): The speed change controller according to claim 8, wherein the detection mechanism comprises an operating force change mechanism that is configured to change the torque required for operative movement of the moving part,

the operating force change mechanism being provided on the base, and the operating force change mechanism is configured to change the torque required for movement of the moving part when or after the detection unit detects that the moving part moves a at least a predetermined amount.

Claim 15 (previously presented): The speed change controller according to claim 13, wherein the operating force change mechanism comprises a resistance portion, at least a part of which is deformable by elasticity, and an abutment formed in a position, in which it can contact with the resistance portion through at least manipulation by a foot immediately before the moving part can be detected by the detection unit, and

when the moving part moves through manipulation by a foot immediately before it can be detected by the detection unit, at least a part of the resistance portion is pushed by the abutment whereby an increase in the torque is realized, and the abutment is formed so that push against the resistance portion by the abutment is released or the push force is decreased when the moving part moves a predetermined amount, which can be detected by the detection unit.

Claim 16 (original): The speed change controller according to claim 15, wherein the resistance portion comprises a surface portion in contact with the abutment and a spring portion connected to the surface portion, and

the abutment comprises a convex portion that pushes the surface portion when the moving part moves through manipulation by a foot immediately before it can be detected by the detection unit.

Claim 17 (original): The speed change controller according to claim 15, wherein either of the resistance portion and the abutment is attached to the moving part, and the resistance portion or the abutment moves together with the moving part.

Claim 18 (previously presented): A speed change controller for a saddle-type vehicle, the speed change controller comprising:

- a detection mechanism that detects operation by a driver for speed change, and
- a speed change mechanism that performs speed change on the basis of speed change operation detected by the detection mechanism, and

- wherein the detection mechanism comprises an operation part including a loaded part, on which a load is applied by manipulation by a foot, and

- a detection unit that detects the load applied on the operation part.

Claim 19 (previously presented): The speed change controller according to claim 18, wherein the detection mechanism comprises a base that supports the loaded part and the detection unit, and

- the base is detachably coupled to the vehicle.

Claim 20 (previously presented): The speed change controller according to claim 1, wherein the detection mechanism is supported on a vehicle body frame of a saddle-type vehicle.

Claim 21 (previously presented): The speed change controller according to claim 1, wherein the operation part comprises a variable mechanism that can change that portion, which is directly manipulated by a foot, in a position relative to the vehicle.

Claim 22 (previously presented): The speed change controller of claim 1 in combination with a saddle-type vehicle.

Claim 23 (previously presented): The speed change controller of claim 8 in combination with a saddle-type vehicle.

Application No. 10/591,560

February 23, 2012

Reply to the Office Action dated November 14, 2011

Page 7 of 8

Claim 24 (previously presented): The speed change controller of claim 13 in combination with a saddle-type vehicle.

Claim 25 (previously presented): The speed change controller of claim 18 in combination with a saddle-type vehicle.